REMARKS

Upon entry of this amendment, claims 1-4 and 7-13 are all the claims pending in the application. Claims 5 and 6 are cancelled by this amendment.

I. Claim Rejections under 35 U.S.C. § 103(a)

A. The Examiner has rejected claims 1, 4, 6, 8, 9, 10, 12 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Fox et al. (U.S. 2002/0074601) in view of the Admitted Prior Art or Kanaya et al. (U.S. 6,611,014). In addition, Applicants note that the Examiner has rejected claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Fox et al. and Kanaya et al. or the Admitted Prior Art, and further in view of Kim et al (U.S. 2002/0053690).

Regarding claim 1, Applicants note that this claim has been amended to recite the features of forming a hard mask on an upper electrode as an etching stopper; etching the upper electrode and a ferroelectric film through the hard mask; and etching, in a self-alignment manner with the hard mask, a lower electrode and a contact film to expose a substrate. Applicant respectfully submits that the above-noted prior art references, either alone or in combination, fail to teach or suggest such a combination of features as recited in amended claim 1.

In the Office Action, Applicants note that the Examiner relied on paragraph [0074] of Kim et al. (U.S. 2002/0053690) in support of the feature recited in original claim 5 regarding the etching of the lower electrode and the contact film being performed in a self-alignment manner (see Office Action at page 6).

Regarding Kim, Applicants note that this reference discloses a method of manufacturing a semiconductor memory device, wherein a bit line connector and a lower electrode connector are

formed using a self-aligned mask pattern (see Abstract). For example, in Kim, it is disclosed that a bit-line connector 216a is formed within a first contact hole in a self-aligned manner (see paragraph [0072]), and that the self-aligned mask 270 is used for forming a lower electrode contact hole (see paragraph [0074]).

As shown in Fig. 18 of Kim, the bit-line connector 216a and lower electrode connectors 228a, 228b are formed in cell area C of the semiconductor memory device (se paragraph [0076]). As disclosed in Kim, a fifth contact hole for forming a capacitor lower electrode is formed over the semiconductor substrate 200 including the lower electrode connectors 228a and 228b (see Fig. 18 and paragraph [0077]). In Kim, after plugs 232a and 232b are formed by filling the fifth contact hole with a conductive material, a lower electrode 236 is formed, and then a dielectric layer 238 and an upper electrode 240 are sequentially formed on the lower electrode 236 (see Fig. 18 and paragraph [0077]).

In view of the foregoing description of Kim, Applicants respectfully submit that while Kim discloses a self-aligned mask 270 which is used for forming a lower electrode contact hole, that the lower electrode contact hole of Kim exists under the lower electrode 236 and upper electrode 240 (see Fig. 18). Thus, in Kim, because the lower electrode contact hole formed by the self-aligned mask 270 exists under the lower electrode 236 and upper electrode 240, Applicants note that the self-aligned mask 270 cannot be used for etching the lower electrode 236 or the upper electrode 240 of Kim.

Accordingly, as the self-aligned mask 270 of Kim is not used for etching the lower electrode 236 or upper electrode 240 of Kim, Applicants respectfully submit that Kim does not

disclose or suggest the features of etching the upper electrode and a ferroelectric film through the hard mask, and etching the lower electrode and the contact film in a self-alignment manner with the hard mask, as recited in amended claim 1.

Furthermore, regarding Fox, the Admitted Prior Art, and Kanaya, Applicants respectfully submit that none of these references, either alone or in combination, cures the deficiencies of Kim with respect to the above-noted combination of features recited in amended claim 1. In view of the foregoing, Applicants respectfully submit that claim 1 is patentable over the cited prior art, an indication of which is kindly requested.

Claims 4, 8-10, 12 and 13 depend from claim 1 and are therefore considered patentable at least by virtue of their dependency. As noted above, claim 6 has been canceled by this amendment, and the feature of forming a hard mask on the upper electrode as an etching stopper has been incorporated into claim 1.

B. The Examiner has rejected claim 2 under 35 U.S.C. § 103(a) as being unpatentable over Fox et al. and either Prior Art as Admitted by Applicant or, over Fox et al. and Kanaya et al and further in view of Jung et al.

Claim 2 depends from claim 1. Applicant respectfully submits that Jung fails to cure the deficiencies of Fox, Applicant's Admitted Prior Art, Kanaya and Kim, as discussed above, with respect to claim 1. Accordingly, Applicant respectfully submits that claim 2 is patentable over the cited prior art, an indication of which is kindly requested.

C. The Examiner has rejected claim 3 under 35 U.S.C. § 103(a) as being unpatentable over Fox et al. in view of Applicant's Admitted Prior Art.

Claim 3 depends from claim 1. As noted above, Applicant respectfully submits that Fox, Applicant's Admitted Prior Art, and Kim fail to disclose, suggest or otherwise render obvious all of the features of claim 1. Accordingly, Applicant respectfully submits that claim 3 is patentable over the cited prior art, an indication of which is kindly requested.

E. The Examiner has rejected claim 7 under 35 U.S.C. § 103(a) as being unpatentable over Fox et al. and Kanaya et al. or the Admitted Prior Art, and further in view of Ohyagi.

Claim 7 depends from claim 1. Applicant respectfully submits that Ohyagi fails to cure the deficiencies of Fox, Applicant's Admitted Prior Art, Kanaya, and Kim, as discussed above, with respect to claim 1. Accordingly, Applicant respectfully submits that claim 7 is patentable over the cited prior art, an indication of which is kindly requested.

F. The Examiner has rejected claim 11 under 35 U.S.C. § 103(a) as being unpatentable over Fox et al. and Kanaya et al. or the Admitted Prior art, and further in view of Nagano et al.

Claim 11 depends from claim 1. Applicant respectfully submits that Nagano fails to cure the deficiencies of Fox, Applicant's Admitted Prior Art, Kanaya, and Kim, as discussed above, with respect to claim 1. Accordingly, Applicant respectfully submits that claim 11 is patentable over the cited prior art, an indication of which is kindly requested.

II. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may best be resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Takashi ICHIMORI

By: Kenneth Fields

Kenneth W. Fields
Registration No. 52,430
Attorney for Applicant

KWF/dib
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
November 8, 2005